

(9Z,12Z,15Z-C18:3 acid), from a natural source such as linseed oil, into 9Z,11E,15Z and 9Z,13E,15Z C18:3 acids, producing a mixture comprising approximately 30% of the conjugated linolenic acids. In a further embodiment, enrichment up to and over 40% is readily performed with urea crystallization. Moreover, the product is obtained in over 90% purity by simple preparative liquid chromatography. The products obtained include free fatty acids, and derivatives thereof, including, but not limited to esters, amides, salts as well as fatty alcohols. The method of the present invention produces the above mentioned conjugated trienoic acid with a high selectivity, in a short time period and under relatively mild conditions.

The present invention further relates to a method for preparing conjugated linolenic acids comprising the steps of:

- (a) blending a or a mixture of vegetable oils and or fats including various concentrations of alpha or gamma and or both linolenic acids with a base to produce a reaction mixture; and
- (b) recovering said conjugated linolenic acids from the reaction mixture.

Further scope and applicability will become apparent from the detailed description given hereinafter. It should be understood however, that this detailed description, while indicating preferred embodiments of the invention, is given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art.

**WHAT IS CLAIMED IS:**

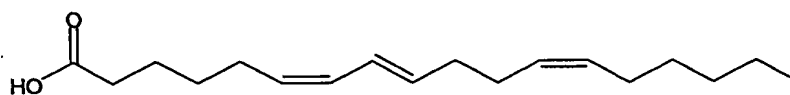
1. A method for preparing conjugated linolenic acids comprising the steps of:
  - (c) blending a or a mixture of vegetable oils and or fats including various concentrations of alpha or gamma and or both linolenic acids with a base to produce a reaction mixture; and
  - (d) recovering said conjugated linolenic acids from the reaction mixture.
2. A method as defined in claim 1, wherein said oils and or fats are selected from the group consisting of arnebia, basil, candelnut, flax (linseed), linola, gold of pleasure, hemp, mustard, perilla, soybean, canola, walnut, chia, crambe, echium, hop, kiwi, pumkin, black currant seed oil, purslane seed oil, borage oil, and evening primrose oil as well as any other oil, wax, ester or amide including linolenic acid.
3. A method as defined in claim 2, wherein said base is selected from the group consisting of sodium hydroxide, sodium alkoxylate, sodium metal, potassium hydroxide, potassium alkoxylate, potassium metal and strong base resins.
4. A method as defined in claim 1, further comprising a subsequent enrichment step selected from the group consisting of urea complexation, liquid chromatography and crystallization.
5. A method as defined in claim 4, further comprising isolating from said reaction mixture geometrical isomers and fully conjugated isomers of said conjugated linolenic acids.
6. A method as defined in claim 1, wherein said blending is performed in a polyol solvent.
7. A method as defined in claim 6, wherein said polyol is selected from the group consisting of propylene glycol, glycerol and ethylene glycol.

8. A method as defined in claim 7, wherein said blending is performed at temperatures ranging from about 20 °C to about 280 °C over a period of time ranging from about 30 seconds to about 18 hours.

5 9. A method as defined in claim 4, wherein said liquid chromatography is reverse phase liquid chromatography.

10 10. A method as defined in claims 1 to 9, wherein said conjugated linolenic acids are selected from the group consisting of 9Z,11E,15Z-octadecatrienoic acid, 9Z,13E,15Z-octadecatrienoic acid, 6Z,8E,12Z-octadecatrienoic acid, and 6Z,10E,12Z-octadecatrienoic acid.

11. A new conjugated linolenic acid of formula 1:



Formula 1

12. A new conjugated linolenic acid of formula 2:

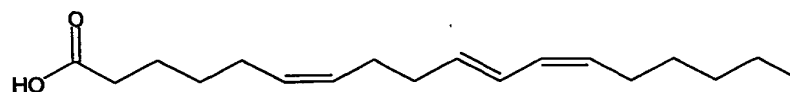


Figure 2

15 13. A method for preparing a conjugated linolenic acids as defined in claim 11 and 12 comprising:

- (a) blending borage oil with a base to produce a reaction mixture; and
  - (b) recovering said conjugated linolenic acids from the reaction mixture.
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14. A method for preparing 9Z,11E,15Z-octadecatrienoic acid and 9Z,13E,15Z-octadecatrienoic acid comprising:

- (a) blending linseed oil with a base to produce a reaction mixture; and
  - (b) recovering said conjugated linolenic acids from the reaction mixture.
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15. A use of conjugated linolenic acids selected from the group consisting of 9Z,11E,15Z-octadecatrienoic acid, 9Z,13E,15Z-octadecatrienoic acid, 6Z,8E,12Z-octadecatrienoic acid, and 6Z,10E,12Z-octadecatrienoic acid in nutritional, cosmetic, and
- 5 nutraceutical applications.